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## REMARKS

Claims 1-58 are pending. Claims 59-88 were withdrawn from consideration in an election. Claims 89-92 are new. Claims 1-22 and 24-44 were rejected. Claims 45-48 have been allowed. Claims 23 and 49-58 were objected to due to informalities, but should be allowed upon correction of the informalities. Applicants thank the examiner for a telephone interview on October 27, 2006, in which the examiner explained his reasoning for his rejections in his August 15, 2006, Office Action. Pending independent claims that stand rejected have been amended and are discussed below.

### Claim Objections

In paragraph 1 of the Office Action, claims 49, 50, 53 and 54 were objected to because of the word "type" in "tubular-type reactor." The examiner suggested omitting the word "type" and using instead "tubular reactor." This change has been made. Claim 53 was objected to in paragraph 2 of the Office Action because step (b) referenced "reaction mixture" instead of "first intermediate." Correction has been made. Applicants understand that with these amendments, claims 49-58 are in condition for allowance.

### Claim Rejections

Claims 1-22 and 24-44 were rejected under 35 U.S.C. 103(a) as being obvious in view of U.S. Patent No. 6,531,547, issued to Visger et al. ("Visger"). The examiner states in paragraph 7 "[d]uring polymerization according to Visger *et al.*, styrene and acrylic monomer are introduced to the reactor in a second stage. The initiator and stable free radical from the styrene polymerization are still active, and consequently, styrene and acrylic monomer remain in the presence of initiator and free radical."

Applicants had argued in a prior Response that only one step is required to produce the copolymer of claim 1, while Visger employs more than one step to produce the Visger copolymer. Visger describes a "process comprising the steps, (a) polymerizing . . . at least one vinyl aromatic monomer to prepare a stabilized active polymer block . . . ; (b) adding at least one acrylic monomer . . . to the mixture of residual vinyl aromatic monomer and stabilized active polymer block of (a); and (c) further reacting the mixture of (b) using a free radical process to effect copolymerization of said monomers." Visger, column 3, lines 47-63. Visger thus employs

at least a first step for "polymerizing . . . at least one vinyl aromatic monomer to prepare a stabilized active polymer block" and a second step for "adding at least one acrylic monomer . . . to the mixture of residual vinyl aromatic monomer and stabilized active polymer block."

Claim 1 has been amended and now expressly states "heating styrene and an unsaturated cyclic anhydride (UCA) in the presence of a free radical initiator and a stable free radical at temperatures between about 110 and about 200° C to form a block copolymer in a single step." While Visger requires multiple steps to form a block copolymer, claim 1 to the present invention requires only a single step to form a block copolymer. It is respectfully submitted that claim 1 and its dependent claims 2-14 are in condition for allowance.

Independent claim 15 has been amended to replace the open-ended transition "comprising" with "consisting essentially of," which addresses the examiner's concern that "the term comprising in the claims does not exclude unrecited steps" expressed in paragraph 7 of the Office Action. Applicants respectfully submit that claim 15 and its dependent claim 16 are in condition for allowance.

Independent claim 17 has been amended to specify in the preamble that the process is a "one-step process for producing a block copolymer." It is respectfully submitted that claim 17 and its dependent claims 18-20 are in condition for allowance.

Independent claim 21 has been amended to provide a process comprising "forming a block copolymer in essentially one step." Consequently, claim 21 and its dependent claims 22-30 are believed to be in condition for allowance.

Independent claim 31 has been amended to recite that a first block is formed comprising styrene and unsaturated cyclic anhydride, polystyrene is formed as a second block after the unsaturated cyclic anhydride monomer is essentially depleted, and the block copolymer consists essentially of the first and second blocks. Applicants respectfully submit that amended claim 31 is not obvious in view of Visger and that claim 31 and its dependent claim 32 are in condition for allowance.

Amendment to claim 34 addresses the examiner's concern that the word "comprising" allows an unrecited step. Claim 34 provides "for making a block copolymer from the styrene and the unsaturated cyclic anhydride without a prior step for making a homopolymer from the styrene or the unsaturated cyclic anhydride." Thus, the first step that Visger uses for making a homopolymer of styrene, polystyrene, is excluded from being read as an unrecited step in claim

34 to the present invention. Applicants respectfully submit that amended claim 34 and its dependent claim 35 are in condition for allowance.

Claim 36 has been amended to recite that a "diblock" copolymer is produced, "forming initially a copolymer of styrene and UCA as a first block of a diblock copolymer; and forming subsequently polystyrene as a second block of the diblock copolymer." Visger describes the opposite, first forming polystyrene in one step and subsequently forming a copolymer in another step as a second block in a block copolymer. Applicants believe there is nothing in Visger to teach or suggest amended claim 36 to the present invention, where a diblock copolymer is formed by initially copolymerizing styrene and UCA and subsequently forming polystyrene as a second block of the diblock copolymer. It is respectfully submitted that claim 36 and its dependent claim 37 are in condition for allowance.

Claim 38 has been amended to recite that "the second block is formed after the first block is formed." Thus, a copolymer of styrene and unsaturated cyclic anhydride is formed, and after that, a second block of essentially pure polystyrene is formed, which is opposite to what Visger describes. Visger describes first making a polystyrene block and then a copolymer block. Applicants do not believe Visger teaches or suggests claim 38 to the present invention, where a polystyrene block is formed after a copolymer block of polystyrene and UCA is formed. Claim 38 and its dependent claims 39-44 are believed to be in condition for allowance.

New claim 89 has been added and recites "(a) making a first block by reacting styrene monomer, an unsaturated cyclic anhydride (UCA) monomer, a free radical initiator and a stable free radical; (b) making a second block by continuing the reaction in step (a) after the UCA monomer is essentially depleted; and (c) recovering a block copolymer consisting essentially of the first and second blocks, wherein the block copolymer has a number average molecular weight greater than about 25,000." Claim 89 expressly recites that the reaction is step (a) is continued after the UCA monomer is essentially depleted and the block copolymer consists essentially of the first and second block. In the opinion of the Applicants, Visger does not teach or suggest new claim 89 to the present invention, and thus, claim 89 is not obvious in view of Visger. Applicants respectfully request that new claim 89 and its dependent claims 90-92 be allowed.

## CONCLUSION

Applicants believe that the amendments to the claims put the pending claims in condition for allowance and that the new claims do not introduce any new matter and are clearly allowable over the prior art of record. In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and allowance of all of the pending and new claims.

Respectfully submitted,

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Stephen S. Hodgson

Stephen S. Hodgson
Reg. No. 41,075

**Certificate of Mailing Under 37 CFR 1.8(a)**

I hereby certify that this correspondence is being submitted to the U.S. Patent and Trademark Office on the date written below via facsimile transmission to number (571) 273-8300.

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Date

Stephen S. Hodgson
Stephen S. Hodgson

Stephen S. Hodgson
Patent Attorney
2636 Albans Rd.
Houston, TX 77005
Telephone (713) 668-7711
Facsimile (713) 668-8855